

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

October 19, 2018

TO: Christopher J. Roscetti, Technical Director
FROM: M. T. Sautman, Resident Inspector
SUBJECT: Savannah River Site Activity Report for Week Ending October 19, 2018

Building 235-F: Risk remediation workers began work inside the glovebox attached to Cell 1. The first task was to replace a very old bagout port bag. Workers had to temporarily pause this task because the initial replacement bag was slightly too large for the port and they needed to get a slightly smaller bag. While preparing for the second bagout of waste, a worker noticed a small tear on the glovebox glove he was using and stopped work. Workers taped the hole and did not detect any contamination release. During the post-job review, the work crew noted how this glove tear was very similar to a tear they found in a Cell 7 glove last week. In both cases, the tear was in a nearly new glove, in an unusual location for a glove failure, and did not appear to be due to normal wear, overstretching, a puncture, or abrasion. Subsequent inspections of other gloves identified three more gloves with tears on Cells 6 and 7. All five gloves had been recently installed and were from the same lot. All cell work involving gloves is paused while the contractor investigates the failures. One possible cause is a manufacturing defect because glove storage, installation, and use appear to be typical. Furthermore, glove changes will not occur until a separate question over the use of vacuum grease in Cells 1-5 is resolved.

H-Canyon: SRNS's preliminary calculations suggest that the unmitigated seismic event doses of 60,900 rem (co-located workers) and 74.5 rem (public) could be reduced such that the need to credit the canyon exhaust ventilation system as safety class for this event would be eliminated. The estimated dose consequence reduction is driven by 1) using the actual material-at-risk for the current missions for line breaks, deflagrations, spills, and entrainment; 2) crediting existing safety significant (SS) passive design features (e.g., process vessels) as initial conditions; 3) qualifying the canyon process jumpers as a SS design feature (like they do at other facilities); and 4) prohibiting plutonium metal and oxide in the hot crane maintenance area. The calculation would assume 5 simultaneous transfers (involving the worst tank for each unit operation) and physically possible tank liquid/vapor ratios when the seismic event occurs. One assumption that would warrant further review is the assumption to only include tanks that reach the composite lower flammability limit within 24 hours. A major contributor to the co-located worker dose is due to a fire involving transuranic (TRU) waste on the cell covers. SRNS is examining how large of a fire is credible considering the form, packaging, and spacing of this TRU waste. Identifying a disposition path for this currently orphaned legacy waste would also reduce the potential dose consequences to the worker. DOE agreed that it would be worthwhile for SRNS to proceed with revising the seismic event progression evaluation and control set identification.

Savannah River Remediation (SRR): In light of last week's Technical Safety Requirement (TSR) violation and inadvertent transfer, SRR conducted a half-shift safety pause. Since the last four inadvertent transfers have involved the Modular Caustic Side Solvent Extraction Unit (MCU), SRR is now requiring 100% peer verifications of all MCU valve manipulations, dry runs of evolutions, and shift operations manager/shift technical engineer review and approval prior to moving liquids. All Defense Waste Processing Facility TSR surveillances that require a limiting condition for operations entry will require a pre-task brief with facility senior management.